Idaho T-62-98

STANDARD METHOD OF TAKING UNDISTURBED SOIL SAMPLES FOR LABORATORY CONSOLIDATION, SHEAR AND PERMEABILITY TESTS

1. SCOPE

1.1 This method of sampling is designed to secure relatively undisturbed soil samples for laboratory tests. Only soils relatively free of gravel and other rock fragments are considered suitable for this type of sampling.

2. APPARATUS

2.1 Mobile drill or diamond drill with standard attachments.

2.2 Clean-out device to assure a clean hole.

2.3 A 63.5 mm (2 1/2-in.) I.D. sample barrel with a supply of 25 mm (1-in.) high brass liner rings and/or a supply of 50 to 75 mm (2- to 3-in.) diameter Shelby thin-wall tubes, 450 to 900 mm (18 to 36 in.) in length with a wall thickness not greater than 1.5 mm (No. 16) gage.

3. PROCEDURE

3.1 The boring should be cleaned out either by hand auger or air jetting to the sampling elevation. Make sure that the bottom of the boring is free of excess loose material.

3.2 With the sampling device resting on the bottom, push it into the soil by a continuous and rapid motion using the hydraulic ram on the mobile drill or diamond drill. The penetration should be approximately five times the diameter of the tube. Do not push the tube farther than the length provided for the sample. The time and pressure required, when measured, should be noted.

If driving is required, the number of blows, driving weight, drop, and penetration should be recorded. Heavy driving weights are preferable to light driving weights because they cause less sample disturbance.

3.3 Before pulling the sample, turn it two revolutions by hand to shear it on the bottom. Pull the sample tube to the surface.

3.4 After pulling the sample, measure and record the length of sample in the tube and also the length penetrated. If the ring-lined sampler is used, select a central portion of the sample and place it in the watertight containers. If the Shelby tube is used, discard the disturbed soil in the upper end. Ream the lower end to a depth of at least 25 mm (1 in.), seal both ends with wax or other approved methods, and secure with masking tape.

3.5 Containers and/or tubes should be clearly labeled as to project, boring number and location, sample number, depth taken, date taken, and personnel.

3.6 Samples should be taken to supplement in-place vane shear tests or standard penetration tests. The number taken is left to the discretion of the investigator. Generally, enough samples should be taken to provide information on each soil type encountered.

3.7 Samples should not be shipped to the Central Laboratory by common carrier, but should be delivered by state vehicle. Sedans are preferred, as the sample can be laid on the seat and cushioned. Deliver as soon as possible. No storage is permitted. Protection should be provided for heat and cold.

3.8 Dropped samples or frozen samples are of no value. Thus, precautions must be taken to eliminate mishandling.

4. RECORDS

4.1 The following information should be taken in the field and transmitted with the samples (see also instructions for "Preparation of Field Logs," Idaho T-95).

4.1.1 Date of boring and project identification.

4.1.2 Location of boring, including offset distance.

4.1.3 Boring number.

4.1.4 Collar elevation.

4.1.5 Log of the boring.

4.1.6 Location of the samples taken in profile.

4.1.7 Water data.

4.2 Information regarding the present topography and landform, as well as dimensions of the proposed structure or embankment, should be noted. This, plus the estimated weight per m^3 (ft^3) of a proposed embankment, should be recorded and the information supplied to the Central Materials Laboratory with the undisturbed sample.